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ABSTRACT TITLE:

Global Snow Signatures in Ku-Band Backscatter

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ABSTRACT TEXT:

Text block boundaries are fixed. Abstract cannot exceed boundaries.

Snow cover has a significant influence on the global heat budget through its albedo and insulating properties, and it plays an important role in many climate feedback processes. In this paper, we present Ku-band backscatter signatures of snow for applications to global snow monitoring with spaceborne scatterometers such as NSCAT on ADEOS satellite and SeaWinds on QuikSCAT. To investigate snow backscatter signatures, the Jet Propulsion Laboratory (*) and the Cold Regions Research and Engineering Laboratory (**) conducted a collaborative snow field experiment in Alaska during in March-April 1999. We obtained Ku-band backscatter signatures from a tower-based polarimetric scatterometer, together with detailed snow physical characteristics including snow depth, density, snow water equivalent, grain size distribution, temperature, wetness, layering, radiation fluxes, and snow cover albedo. The snow field experiment results are applied to the interpretation of backscatter data acquired by NSCAT and QuikSCAT. Results from NSCAT show signatures of various global snow types, early snow melt conditions, and the snow event leading to the 1997 Flood of the Century in the US midwest regions and in Manitoba of Canada. SeaWinds/QuikSCAT data will be analyzed to study snow signatures over the northern hemisphere during the 1999-2000 snow season with times-series global backscatter imagery.

TOPIC PREFERENCE: Topics A.29: Sea Ice, Snow, and Glacier Monitoring